2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140245

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPERATION WAS OPTIMIZED FOR A SPRAY DRYER IN WHICH PIGMENT PASTE IS INJECTED INTO AN UPWARD STREAM FO FLUE GASES FROM THE COMBUSTION OF THE NATURAL GAS. THE UPPER FLUE GAS TEM. LIMITS ARE 320-300EGREES OR 290-320DEGREES FOR YELLOW IRON OXIDE OR ZN CHROMATE PIGMENTS, RESP. ABOVE THESE TEMPS. COLOR CHANGES TAKE PLACE.

UNCLASSIFIED

USSR

UDC 669-412.141.241.2:658.562

KOLOSOV, M. I., STROGANOV, A. I., SMIRNOV, YU. D., and OKHRIMOVICH, B. P.

"Killed Steel Ingot Quality"

Moscow, Kachestvo slitka spokoynoy stali (cf. English above), Metallurgiya, 1973, 408 pp (from Kachestvo slitka spokoynoy stali, Metallurgiya, 1973, pp 2-5)

Translation of Annotation: This book is devoted to the description of the process of crystallization of a killed steel ingot. A study is made simultaneously of the processes occurring on solidifying of the ingot: the behavior of the gases and nonmetallic inclusions, the admixture distribution, convective flows, and so on.

A great deal of attention in the book is given to the investigation of various macro and microdefects of the steel ingot and in the majority of cases practical recommendations are made with respect to elimination of them.

The book is intended for engineering and technical workers of the metallurgical plants, the planning and design and scientific research institutions and training institutions, and it can be useful for students specializing in steel metallurgy.

There are 89 illustrations, 60 tables and a 551-entry bibliography.

Contents

1/5

USSR

KOLOSOV, M. I., et al., Kachestvo slitka spokoynov stali, Metallurgiya, 1973, 408 pp

USSR

KOLOSOV, M. I., et al., Kachestvo slitka spokoynov stali, Metallurgiya, 1973, 408 pp

USSR

KOLOSOV, M. I., et al., Kachestvo slitka spokoynov stali, Metallurgiya, 1973, 408 pp

USSR

KOLOSOV, M. I., et al., Kachestvo slitka spokoynov stali, Metallurgiya, 1973, 408 pp

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UDC 669.15'27-194

USSR

STROGANOV, A. I., PYL'NEV, Yu. A., CHERNYSHEV, E. Ya., KEYS, N. V., PAKULEVA, V. S., DONETS, I. D., KHOLODOV, Yu. A., and GERMELIN, F. A., Chelyabinsk Polytechnical Institute; Chelyabinsk Metallurgical Plant

"Tungsten Losses in the Production of High-Speed Steel"

Moscow, Metallurg, No 1, Jan 71, pp 21-23

Abstract: Data are presented on seven melts of R18, R12, and R6M3 high-speed steels, an analysis is made of tungsten electric steelmelting and forge conversion processes, and methods are presented for utilizing scrap of tungsten-bearing steels. From the study the following conclusions can be made: as the tungsten content in the steel is increased, its assimilation decreases. A decrease in the proportion of tungsten through the ferro-alloys as well as a decrease in the consumption of oxygen for blowing facilitate a more complete assimilation of tungsten by the metal. A substantial portion of tungsten is lost with the scrap and regulus in the slag (0.34%), the emery dust, and scale during forging. A thorough extraction of tungsten from slag and scale is suggested. Means for reducing tungsten losses in the process of heating castings and ingots in the furnaces include

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USSR

STROGANOV, A. I., et al, Metallurg, No 1, Jan 71, pp 21-23

a nonoxidizing atmosphere, more rapid heating, and application of a protective coating to ingots prior to heating. To decrease decarburization and scale formation, the Chelyabinsk Metallurgical Plant has recently been using coatings comprising refractory clay (20%), M40 carborundum powder (6%), fine graphite (6%), commerical borax (3%), and liquid glass (65%).

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ALLOY FOR ALLOYING STEEL -U-

AUTHOR-(05)-STROGANOV, A.I., POVOLOTSKIY, D.YA., NAZAROV, V.F., TULIN, N.A., LYUBIMOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,889

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, STEEL CONSTITUENT, ALLOY STEEL, TUNGSTEN STEEL, SILICON STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1833 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132098

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0132098
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ALLOY HAS THE FOLLOWING COMPN.: W 55-75, SI 10-25 WT. PERCENT, FE THE REMAINDER.
FACILITY: CHELYABINSKIY POLITEKHNICHESKIY INSTITUT.

UNCLASSIFIED

USSR UDC 669.715'3'782'73'721'781.018.28:669.018.2(088.8)

STROGANOV, G. B., AL'TMAN, M. B., POSTNIKOV, N. S., KHOLODOV, Yu. I., OSIPOV, I. N., LOKTIONOVA, L. I., and CHERKASOV, V. V.

"High-Strength Aluminum-Base Casting Alloy"

USSR Authors' Certificate No 260893, Cl. 40 b, 21/02, (C22c), filed 10 Apr 68, published 12 May 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1766 P)

Translation: The alloy contains (in %) Si 6-8, Cu 2.5-5.5, Cd 0.05-0.4, Mg 0.05-0.4, B 0.002-0.1, Zr 0.005-0.25, Ti 0.1-0.3, Fe $\leq$ 0.5. The addition of up to 0.5% Ni is recommended in order to raise heat resistance. In the heat-treated state under regime T5 the alloy at room temperature (loam casting) has a breaking point of 36-40 kg/mm^2, $\sigma_{0.2}$ 30-34 kg/mm^2, and δ 3-6% given σ_{100}^{300} = 5.5 kg/mm^2. The alloy possesses elevated fluidity and impermeability, is highly machinable, is weldable by argon arc welding, and contains no toxic elements. It is recommended for the manufacture of cast parts subject to great stresses.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--IMPROVEMENT IN SILUMIN REFINING TECHNOLOGY -U-

AUTHOR--STROGANOV, G.B.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 39

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHLORIDE, METAL REFINING, ALUMINUM ALLOY, SILICON ALLOY, HYDROGEN, METAL CONTAINING GAS, GAS CONTAINING METAL, ALLOY DESIGNATION/(U)W2626 ALUMINUM ALLOY, (U)AL2 ALUMINUM ALLOY, (U)AL4 ALUMINUM ALLOY, (U)AL4M ALUMINUM ALLOY, (U)WAL5 ALUMINUM ALLOY, (U)SILUMIN ALUMINUM SILICON ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1738 STEP NO--UR/0128/70/002/000/0039/0039

CIRC ACCESSION NO--AP0118716
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118716

ABSTRACT/EXTRACT--(U) GP-0- SUB2, C SUB2 CL SUB6, CACL SUB2 RZF SUB6 WITH AR, AND K SUB2 ZRF SUB6 WITH C SUB2 CL SUB6 IN AMTS. OF 0.2, 0.4, 0.6, 0.8, AND 1.0PERCENT OF THE CHARGE MASS. THE EFFICTIVENESS OF REFINING WAS TESTED ON SAMPLES TAKEN UNDER VACUUM BY X RAY ANAL., BY TESTING THEIR GAS TIGHTNESS, BY METALLOGRAPHIC ANAL., AND BY MECH. TESTING. REFINING WITH CACL SUB2, LICL, AND BCL SUB3 WAS ONLY SLIGHTLY EFFECTIVE; THE MOST EFFECTIVE REFINING WAS WITH K SUB2 RZF SUB6 IN AMTS. OF 0.8PERCENT OF THE CHARGE WAS WELL AS IN COMBINATION WITH C SUB2 CL SUB6 FOR ALLOYS: AL2, AL4, WAL5, AL4M AND W-2616. IN ALL THE CASES THE MECH. PROPERTIES WERE IMPROVED AND A REDN. IN H CONTENT WAS ATTAINED.

ABSTRACT. SILUMIN AL 9 WAS TREATED WITH MNCL SUB2, LICL, AR, BCL SUB3, H SUB2 ZRF SUB6, K SUB2 RZF SUB6 WITH C SUB2 CL SUB6 IN AMTS. OF 0.2, 0.4, 0.6, 0.8, AND 1.0PERCENT OF THE CHARGE MASS. THE EFFICTIVENESS OF REFINING WAS TESTED ON SAMPLES TAKEN UNDER VACUUM BY X RAY ANAL., BY TESTING THEIR GAS TIGHTNESS, BY METALLOGRAPHIC ANAL., AND BY MECH. TESTING. REFINING WITH CACL SUB2, LICL, AND BCL SUB3 WAS ONLY SLIGHTLY EFFECTIVE; THE MOST EFFECTIVE REFINING WAS WITH K SUB2 RZF SUB6 IN AMTS. OF 0.8PERCENT OF THE CHARGE WAS WELL AS IN COMBINATION WITH C SUB2 CL SUB6 FOR ALLOYS: AL2, AL4, WAL5, AL4M AND W-2616. IN ALL THE CASES THE MECH. PROPERTIES WERE IMPROVED AND A REDN. IN H CONTENT WAS ATTAINED.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210011-9"

1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--HIGH STRENGTH ALUMINUM BASE CASTING ALLOY -U-

AUTHOR-(05)-STROGANOV, G.B., ALTMAN, M.B., POSTNIKOV, N.S., KHOLODOV, YU.I., OSIPOV, I.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,893

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM ALLOY, METAL CASTING, METALLURGIC PATENT, HIGH STRENGTH ALLOY, DIE CASTING, NICKEL CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1790 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109751

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AA0109751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE PHYSICOMECH. PROPERTIES OF THE TITLE ALLOY DURING DIE CASTING, IT HAS THE FOLLOWING COMPN.: SI 6-8, CU 2.5-5.5, CD 0.05-0.4, MG 0.05-0.4, B 0.002-0.1, ZR 0.005-0.25, TI 0.1-0.3, FE SMALLER THAN OR EQUAL TO 0.5PERCENT, AND AL THE REMAINDER. TO INCREASE THE HIGH TEMP. STRENGTH OF THE ALLOY, IT ALSO CONTAINED SMALLER THAN 0.5PERCENT NI.

UNCLASSIFIED

USSR UDC: 621.391.2

BABKIN, Yu. S., ISKHAKOV, I. A., SOKOLOV, A. V., STROGANOV, L. I., SUKHONIN, Ye. V.

"On the Problem of Attenuation of Emission on a 0.96 mm Wave in Snow"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No 12, Dec 70, pp 2459-2462

Abst act: This work was done to study attenuation on a 0.96 mm wave on a 680 m transmission path in snows of up to 2 mm/hr expressed in the amounts of water precipitated. The experimental part of the work was done in 1969-1970 in the central European section of the Soviet Union. Precipitation was measured by three P-2 recording rain gauges placed at both ends of the transmission path and in the middle. Temperature, pressure, humidity and wind speed were measured at the same time. Rotating one-meter Cassegrain antennas were used. It was found that attenuation in rains of the same intensity (2 mm/hr) is approximately 30-40% lower. A strongly idealized calculation is given within the framework of Mie theory for attenuation in snows. The results agree satisfactorily with experimental data if the effective radii of spherical snow particles are interpolated. The authors thank M. A. Kologov for advice and for remarks made during the work.

1/1

USSR UDC: 621.391.2:621.396.96

BABKIN, Yu. S., ZEMIN, N. N., IZYUMOV, A. O., ISKHAKOV, I. A., SOKOLOV, A. V., STROGANOV, L. I., SUKHONIN, Ye. V., SHABALIN, G. Ye.

"Measurement of Rain Attenuation on a 0.96 mm Wave Over a 1 km Route"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2451-2453

Abstract: An investigation is made into attenuation in rains of varying intensity and a relationship is found between the attenuation and the mass of water precipitated in a given time interval. The transmitter was a frequency-stabilized unit based on a backward-wave oscillator, and the receiver used an indium antimonide detector cooled to liquid helium temperatures. Rotating one-meter Cassegrain antennas were used. Rainfall was registered by three P-2 recording rain gauges placed at both ends and in the middle of the 1 km transmission path. Temperature, pressure, humidity and wind speed were also measured. Attenuation on a 0.96 mm wave was determined from the change in signal level at the receiver during rains. For rain intensity of 0.12 mm/hr (covering more than 99% of all cases) the attenuation on a 0.96 mm wave in decibels per kilometer is approximately $1.53 \cdot I^{0.038}$, where I is rain intensity in mm/hr. This is 2.5-3 times the attenuation observed on a wave of 8.6 mm.

1/1

USSR

UDC 621.371.332.3

ANDREYEV, G. A., SAVCHENKO, V. P., SOKOLOV, A. V., and STROGANOV, L. I.

"Using FM Signals of the Submillimeter Range for Revealing the Structure of Local Dispersion of an Extended Body"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 111-116 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G10)

Translation: The resolving power and noise immunity of secondary radiation reception from locally dispersive extended bodies are analyzed. It is noted that complex continuous signals (particularly linearly frequency modulated signals) are used to improve the sensitivity. To obtain information regarding the level and position of the dispersive elements using LFM signals, coherent reception with subsequent nonlinear transformation of the reference and dispersed signals as well as low-frequency filtration is required. Under large-scale experimental conditions, a radial resolving power of 2.7 cm is realized with a signal/noise ratio of about 23 dB. Four illustrations, bibliography of three. N. S.

1/1

USSR UDC 576.8.097.29:591.524.1

STROGANOV, N. S., KHOBOT'YEV, V. G., KOCHKIN, D. A., KOLOSOVA, L. V., and EL'KHANOV, G. E., Chair of Hydrobiology, Moscow State University imeni M. V. Lomonosov

"Toxicity of Some Organometallic Compounds for Hydrobionts. I. The Effect of Alkylmethacryloxyplumbanes"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 10, 1970, pp 13-17

Abstract: Experiments with organolead derivatives, tri- and di alkylmethacryloxyplumbanes showed that these compounds are a thousand times more toxic to the crustacean Daphnia magna Strauss than to the algae Scenedesmus quadricauda and Chlorella vulgaris. Even at concentrations of 0.001 mg/liter, the survival rate of the crustaceans was 10 to 75% lower than that of the controls. The compounds were toxic to the algae only at concentrations of 0.5 to 1 mg/liter or higher. The survival rate of the crustaceans in solutions of the substances was very low by the 15th day, whereas the number of algae decreased by only 50% during this time. Toxicity was clearly manifested only at the 30th day, when the number

USSR

STROGANOV, N. S., et al, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 10, 1970, pp 13-17

of cells decreased sharply. These results suggest that alkylmethacryloxy-plumbanes might be used in commercial bodies of water to suppress the population of certain zooplankton organisms.

2/2

USSR

UDC 576.8.097.29:591.524.1

STROGANOV, N. S., KHOBOT'YEV, V. G., KOLOSOVA, L. V., KOCHKIN, D. A., and EL'KHANOV, G. E., Chair of Hydrobiology, Moscow State University imeni M. V. Lomonosov, Moscow

"The Toxic Action of Some Organometallic Compounds on Aquatic Life. II. The Action of Alkyl(aryl) Lead-Organic Compounds"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 3, 1971, pp 21-24

Abstract: The action of the compounds Me_3PbCl (I), Me_2PbCl_2 (II), Et_3PbOH (III), and Ph_4Pb (IV) on the algae Scenedesmus quadricauda and Chlorella vulgaris and the crustacean Daphnia magna was studied. I, II, and III were more toxic towards the Daphnia than the algae, whereas IV was more toxic towards algae, exerting an algicidal effect even in a concentration of 0.01 mg/l, while producing no toxic action on the Daphnia in concentrations ≤ 8 mg/l. A compound with a selective action such as that of IV can be used for the control of aquatic life in industrial water reservoirs in cases in which the blooming of water must be suppressed, while it is desirable to preserve the propagation of the zooplankton. Water from reservoirs of this type is used neither for drinking nor for household purposes.

1/1

USSR

UDC 621.375.8

KRIVOSHCHEKOV, G. V., SAMARIN, V. I., STROGANOV, V. I., and TARASOV, V. M.

"Cascaded Frequency Transformation of Laser Radiation in Nonlinear Crystals"

Novosibirsk, Avtometriya, No 5, 1972, pp 106-112

Abstract: An important problem in laser physics is finding means of increasing the range of the radiation. The purpose of this paper is to indicate the possibilities in cascaded frequency transformation of laser devices for setting up powerful sources of coherent ultraviolet radiation. The authors begin their analysis of laser spectral conversion with a system of heterogeneous differential equations describing the radiation in nonlinear crystals with the approximation of slow amplitudes for plane waves in a quasi-stationary process. Recognizing that the process of successive frequency conversions is the same as in excitation of the second harmonic and the composite frequencies, the authors derive expressions for the amplitudes of those waves, assuming that the synchronism condition has been satisfied. A table is given of various

1/2

USSR

KRIVOSHCHEKOV, G. V., et al, Avtometriya, No 5, 1972, pp 106-112

crystals and their parameters, together with bibliography references. Cascaded frequency conversion yields a wavelength of 0.353 microns, representing the third harmonic, in a laser with neodymium glass, at a power of more than 30 MW and with a conversion factor of 4%, as well as fourth and fifth harmonics of 0.265 and 0.212 microns in wavelength respectively. The author notes that many questions of the optimization of pumping source parameters and the process itself still must be resolved before the advantages of cascaded frequency transformation can be realized.

2/2

USSR

UDC 621.375.82

KIDYAROV, B. I., KRIVOSHCHEKOV, G. V., MITNITSKIY, P. L., SAMARIN, V. I., STROGANOV, V. I., TARASOV, V. M.

"Dispersion of Wave Synchrony in a $LiIO_3$ Crystal"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 399-407 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D858)

Translation: A study is made of the dependence of the nonlinear characteristics of $LiIO_3$ on the frequency in order to discover new possibilities of applying this crystal for cascade laser emission frequency multipliers. The $LiIO_3$ crystals in the hexagonal version were grown from an aqueous solution containing 10% HIO_3 with respect to $LiIO_3$. The nonlinear characteristics of the crystal were investigated by means of a glass Nd-laser with a broad generation spectrum of 0.008 Å. An experimental check was made of the intensity of the excited second harmonic as a function of the wavelength of the radiation propagated along the direction of synchrony. A study was also made of the dependence of the intensity of the second harmonic on the pumping beam deflection from the direction of synchrony. When determining the magnitude of $d\theta_c/d\lambda$, additional possibilities for a nonlinear frequency discriminator were discovered. The bibliography has 7 entries.

1/1

USSR

UDC: 621.318.8:53.082.75

TREYER, V. V., STROGANOV, V. S.

"Possibilities for Use of Electrochemical Controlled Resistors in Automatic Devices"

Pribory i Sistemy Upravleniya, No. 5, 1970, pp 41-43

Abstract: In electrochemically controlled resistors the value of the output parameter (resistance) changes due to processes of electrolysis occurring when an electrical current is passed through the input circuit (control circuit). The main characteristics of ECR are: range of change of resistance; time required to change resistance through entire range; drift of resistance during a fixed time interval when no control current is applied. In the opinion of the authors, ECR can be recommended for use in two main modes: as a contactless control element and as an analog memory element. Three circuits for transistorized amplifiers with controlled gain and analog memory properties are diagrammed and described. A linear analog memory device is also diagrammed and described. The circuits are of interest for automation devices, particularly when the use of electromechanical elements is difficult due to the requirements for low weight, small size, low power consumption, and cost.

1/1

UDC 613.71:355.3

USSR

ZUIKHIN, D. P., and STROGANOV, V. M.

"Intensity of Physical Training of Submarine Crews During Cruises"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 67-69

Translation: The motor activity of members of submarine crews during long cruises is very limited. Through the use of individual pedometers it was found that submariners take more than 10,000 steps a day while at home base but only 4,000 (in the case of those who do not engage in physical exercise) or sometimes only 700 steps during a cruise. This is one of the reasons for the functional changes that take place in the cardiovascular system during cruises.

The adverse effects of hypodynamia on submariners can be mitigated only by systematic, scientifically grounded physical exercises during and between cruises. Since 1964 we have been particular interested in the physical training of submariners during a cruise. Many submarine doctors (A. Ye. Ovchinnikov, Ye. K. Seleznev, Yu. S. Ugulava, Yu. S. Nikolayev, and others) think highly of its value in maintaining the personnel's sense of well-being and work capacity. Studies conducted by F. I. Gorskiy and A. I. Slizhevskiy showed that the performance of all groups of muscles declined in individuals who did

1/5

USSR

ZUIKHIN, D. P., and STROGANOV, V. M., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 67-69

not exercise during a voyage, whereas in those who did free exercises (without equipment) for 15 minutes on a shift muscular performance remained as good as before the voyage and in some cases was even better. It was also observed that in well-trained submarines the level of physical fitness was higher than in those less well-trained, even if both did not exercise during a cruise. This shows the need for regular physical training of submariners in the period between cruises.

Physical exercise is known to increase the nonspecific resistance of the body to some poisons and ionizing radiation. Excessive exercise, on the other hand, may diminish this resistance (N. V. Zimkin and A. V. Korobkov, 1960). Therefore, the selection of physical exercises to be performed during a long cruise must be strictly tailored to the individual. The differences in physical condition, nature of the man's job, age and action of unfavorable factors make it impossible for all the submariners to do the same set of exercises.

We have been studying in recent years the effect of various physical loads on certain functional indexes in submariners. For example, during two cruises

2/5

USSR

ZUIKHIN, D. P., and STROGANOV, V. M., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 67-69

(fall and summer) we observed individuals who engaged in physical exercise of different intensities. We divided them into three groups. The first included those who were in good condition before the cruise and then continued to do heavy exercise during the crusie (pull-ups, lifting weights of as much as 16 kg, using 8 kg dumbbells for 15 to 30 minutes or free exercise with light equipment - expanders, light dumbbells, rubber stretching straps , gym stick - for 30 minutes to an hour). The second group consisted of men in moderately good condition who performed moderately strenuous exercises during the cruise (pull-ups, squatting, hand grips free exercises with light equipment - from 30 minutes to an hour). The third group consisted of men in moderately good condition who performed light exercises during the cruise (pull-ups, squatting, hand grips - for 10 to 30 minutes).

The exercising was done in accordance with individual programs in the men's free time in the living quarters where the gaseous composition of the air was kept at permissible levels, the temperature fluctuated between 21 and 28°C and the relative humidity between 50 and 70%. The exercises filled out special charts on which they mentioned the nature and duration of the exercises, time and place they were performed, and the way they felt at

3/5

USSR

ZUIKHIN, D. P., and STROGANOV, V. M., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 67-69

different times during the cruise in relation to the exercises. In addition, the subjective condition was evaluated by questioning the men every two weeks. The answers showed that a substantial number of those who did heavy or moderate exercises felt worse after exercising: fatigue, apathy, sleepiness, pain in the joints and muscles and in the heart region, tachycardia, etc. Some 60% of those in the first group presented complaints compared with 37% of those in the second group. This is why about one-third of the men in the first and second groups shortened the exercises or abandoned them altogether. The mildness of the exercises performed by the third group had no adverse effect on the subjective feelings of the exercises and most of them judged the activity favorably.

The data on changes in some indexes of the cardiovascular and nervous systems show that the first group of men who did fairly strenuous exercises did not exhibit any substanital improvement in the cardiovascular indexes after the cruise. Among the men in the second and third groups, there was a significant increase in the pulse rate, increase in Quaas' coefficient of tolerance, and rise in diastolic arterial pressure (significant in the second

4/5

USSR

ZUIKHIN, D. P., and STROGANOV, V. M., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 67-69

group) with a fall in systolic pressure. The findings on changes in the clinostatic and orthostatic reflexes show that excitability of the nervous system increased in all three groups, but was more pronounced in the second and third. Thus, there was definite discrepancy between the subjective data and the objective indexes.

A broader study of the effect of hypodynamia on man using up-to-date methods is necessary in order to provide a scientific basis for recommendations on the duration and intensity of physical exercises for submariners during cruises.

5/5

USSR

UDC 669.891.5.71.725.018.8(088.8)

STROGANOVA, V. F., TEREKHOVA, V. F., SAVITSKIY, Ye. M., STREL'TSOV, Ye. I., IGNATOVA, L. I., NAKONECHNIKOV, A. I., ZAV'YALOV, A. I. [Institute of Metallurgy imeni A. A. Baykov, Physics and Energy Institute]

"Calcium-Based Alloy"

USSR Author's Certificate No. 276422, Filed 17/12/68, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, I761P).

Translation: In order to increase the corrosion resistance of binary Ca-Al alloys, it is suggested that they be additionally alloyed with Be with the following relationships of components (in %): Al 0.5-1.5, Be 0.3-0.8, remainder Ca. The new alloy, while retaining high mechanical properties, has corrosion resistance defined by the weight gain of specimens of 0.003 g/cm^2 per 100 hours, i. e., is practically not oxidized in air (in an atmosphere with normal relative humidity). The melting point of the alloy is 580-600°, the specific gravity $\leq$ 1.7 g/cm^2. It is suggested for use in atomic power engineering.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--METALLOGRAPHY OF CALCIUM -U-

AUTHOR-(03)-STROGANOVA, V.F., TEREKHOVA, V.F., SAVITSKIY, YE.M.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, MAR.-APR. 1970, (2), 228-230

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CALCIUM, CALCIUM ALLOY, METAL POLISHING, MATERIAL GRINDING, NITRIC ACID, METAL MICROSTRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1453 STEP NO--UR/0370/70/000/002/0228/0230

CIRC ACCESSION NO--AP0130386

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS OF STUDYING CA AND CA ALLOYS METALLOGRAPHICALLY ARE DESCRIBED AND DISCUSSED. THE CHIEF DIFFICULTY IS THE REACTIVITY OF THIS ALKALINE EARTH ELEMENT IN MOIST AIR. BY PROPER ATTENTION TO TECHNIQUE GOOD RESULTS MAY BE ACHIEVED BY EXAMINING SEVERELY OXIDIZED SAMPLES AND DEDUCING THE UNDERLYING MICROSTRUCTURE. A SMOOTH AND LUSTROUS SURFACE MAY BE ACHIEVED BY USING AN INTERMEDIATE ETCH OF CONCENTRATED HNO SUB3 WITHOUT ANY OF THE USUAL GRINDING AND POLISHING PROCESSES.

UNCLASSIFIED

USSR UDC: 621.396.6:621.315.612

BYCHKOV, P. S., STROGANOVA, V. V.

"A Method of Two-Stage Annealing of Ceramic Radio Components"

USSR Author's Certificate No 268234, filed 15 May 67, published 20 Jul 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V375 P)

Translation: A method is proposed for two-stage annealing of ceramic radio components made by hot pressure casting from high-clay materials. To shorten the duration of the annealing cycle and eliminate contamination of the air by binder vapors, the first stage of annealing is done in porous ceramic vessels covered with ceramic lids.

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USSR

UDC: 621.391.2

LAUFER, M. V., STROGIV, V. G.

"Finding the Spectra of Modulated Pulse Sequences by the Method of Spectral Functions"

Kiev, IVUZ Radioelektronika, Vol 15, No 5, May 72, pp 641-644

Abstract: A method is given for finding the spectra of modulated pulse sequences by using spectral functions. The proposed method is used for determining the signal spectrum from the ChIM-2 for a rectangular pulse train.

1/1

STROITELEV, S.A.

JPRS 59305

6-73

SESSION XIV

XIV-2. GROWTH OF MONOCRYSTALLINE LAYERS -- ONE TYPE OF HABIT PROFILING OF SEMICONDUCTORS

[Article* by S. A. Stroitelev, Novosibirsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 194]

The surface of monocrystalline layers of semiconductors is formed as a result of habit conversions. The most perfect epitaxial layers were obtained with high accuracy of orientation of the substrates correspondingly by the habit faces.

In the case of inexact orientation of the substrates, polycentric overfacing takes place which causes complication of the surface of the epitaxial layers and is accompanied by the formation of lattice defects.

[* Article XIV-1 omitted in original Russian-language text]

STROITELEV, S.A.

JPRS 51963

6 73

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VIII-6. FORM OF GROWTH OF DISLOCATIONLESS SINGLE CRYSTALS OF SILICON GROWN BY THE NONCRUCIBLE ZONE MELTING METHOD

[Article by V. V. Kemarskiy, S. A. Stroitelev, Novosibirsk; Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 107]

The dislocation single crystals of silicon are cylindrical and the form of growth of dislocationless single crystals varies as a function of the supercooling of the melt and the coincidence of the crystallographic axis [111] with the geometric axis of the bar and with the axis of the thermal field. In individual cases twisting takes place. The disappearance of the faceting elements of single crystals is accompanied by avalanche formation of dislocations.

The form of growth of dislocationless single crystals can be used as the criterion for optimizing the growth conditions.

USSR

UDC 621.315.592

BOLKHOVITYANOV, Yu. B., and STROITELEV, S. A.

"Production of Thin Layers of Germanium and Antimonides of Indium and Gellium from a Melt and Some of Their Properties"

V sb. Protessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films — Collection of Works), Novosibirsk, 1970, pp 360-367 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B76)

Translation: Thin layers of Ge, InSb, and GaSb are obtained from a supercooled melt by the liquid epitaxy method, and their electrical and structural properties are studied. The substrates, fixed in quartz fasteners, were moved vertically. The crucible with the melt was fastened to a rod and could be rotated with the aid of a motor. The temperature of the melt was controlled by a mobile thermocouple with a precision of 0.1--0.2° C. The experiments were conducted in an H_2 atmosphere. Layers of Ge were grown on Ge substrates, GaSb on GaSb and GaAs substrates, and InSb on InSb, InAs, GaSb, GaAs, and GaP substrates. The substrates were oriented with respect to the (111) plane. It is shown that the layers grown are monocrystalline. The most perfect are autoepitaxial and the less perfect, heteroepitaxial layers. The electrophysical properties were studied on layers with a thickness of 100--150 micron. It is shown that layers of InSb grown from one and the same melt on different substrates are characterized by similar electrical properties, with the exception of layers of InSb on GaAs where some decrease of the substrate electrons is observed. 15 ref. B.T.

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USSR

UDC 621.382.2

DUDNIK, YE.P., YERMEN, V.K., LEVINZON, D.I., RYVKIN, S.M., STROKAN, N.B., SUBASHIYEVA, V.P., TISNEK, N.I. [Physico-Technical Institute imeni A.F. Ioffe, Academy Of Sciences, USSR, Leningrad]

"High-Resolution Counters Of Germanium With Radiation-Induced Defects"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 779-781

Abstract: The characteristics are presented of counters obtained as usual on the basis of germanium with $N_D - N_A \sim 10^{12}$ cm^{-3} but with a decrease of more than one order of magnitude of the background of impurities and defects N_F. The amplitude spectrum of a specimen of ^{137}Cs is shown. The resolution of the counters at this line is less than R = 1.2 percent. The dependence is shown of the constant capture time on the electrical field intensity. 2 fig. 13 ref. Received by editors, 5 Nov 1971.

1/1

USSR

UDC 621.376.234

RYVKIN, S.M., MATVEYEV, O.A., NOVIKOV, S.R., STROKAN, N.B.

"Semiconductor Detectors Of Nuclear Radiation"

V sb. Poluprovodnikovyye pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 25, 1971, pp 267-298

Abstract: The principal problems which arise during design and production of semiconductor counters are described. It is shown that the basic reason which at present limits the resolution of counters is the quality of the starting material. The parameters of the material which determine the characteristics of the counters are shown and methods of measuring the magnitudes indicated are presented. Data are presented on germanium lithium-drift detectors, germanium "radiation" detectors, silicon surface-barrier detectors, and silicon lithium-drift detectors. The technological processes for production of the counters are considered, in particular the various methods for accomplishment of compensation in the operating zone of the detector, as well as methods for creation of contacts. Together with transition procedures, considerable attention is given to ion implantation methods. 13 fig. 1 tab. 64 ref.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ANTIBIOTIC SENSITIVITY OF STAPHYLOCOCCI ISOLATED FROM BLOOD IN CASES WITH NONSPECIFIC BACTERIEMIA AND SEPSIS -U-

AUTHOR-(02)-PROSKUROV, V.A., STROKATOVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 532-534

DATE PUBLISHED----------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIBIOTIC RESISTANCE, PENICILLIN, STAPHYLOCOCCUS, KANAMYCIN, OLEANDOMYCIN/(U)LEUCOMYCIN ANTIBIOTIC, (U)PHICILLIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1862 STEP NO--UR/0297/70/015/006/0532/0534

CIRC ACCESSION NO--AP0125473

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125473
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STAPHYLOCOCCAL STRAINS ISOLATED FROM BLOOD OF VARIOUS PATIENTS WERE RESISTANT #81.6PERCENT) TO THE MOST WIDELY USED ANTIBIOTICS. PENICILLIN RESISTANCE WAS REGISTERED MAINLY IN TOXIGENIC STAPHYLOCOCCI. RESISTANCE TO LEUCOMYCIN, EPHICILLIN, KANAMYCIN, OLEANDOMYCIN WAS RARE AMONG THE ISOLATES. FACILITY: N. I. PIROGOV ODESSA MEDICAL INSTITUTE.

UNCLASSIFIED

USSR

STROKIN, V. N.

UDC 536.46:533.6

"On the Self-Ignition and Combustion of Hydrogen in a Supersonic Flow"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 282-285 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B942)

Translation: An experimental study of the combustion of hydrogen supplied from walls in a wind tunnel with Mach number $M_1 = 3.5$ at the entrance is described. The air temperature at the entrance to the tube was $T_1^* \leq 2100°K$ and the pressure $p = 0.04$ atm. It is shown that ignition of the hydrogen occurs at the end of the tunnel in the boundary layer near the walls and the possibility of ignition is a function of the intensity of perturbations imparted to the flow by the jets of fuel. Combustion under these conditions produces a considerable improvement in the mixing of the fuel with air. It is stated on the basis of special experiments that the reason for this improvement is the intensive compression shocks arising in the tunnel upon the supply of heat to the supersonic flow. Author's abstract.

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1/2 007 UNCLASSIFIED

TITLE--WATER BALANCE OF OCEANS -U-

PROCESSING DATE--11SEP7C

AUTHOR--BUDYKO, M.I., STROKINA, L.A.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA, I GIDROLOGIYA, 1970, NR 4, PP 49-58

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN, WATER BALANCE

CONTROL MARKING--NO RESTRICTIONS

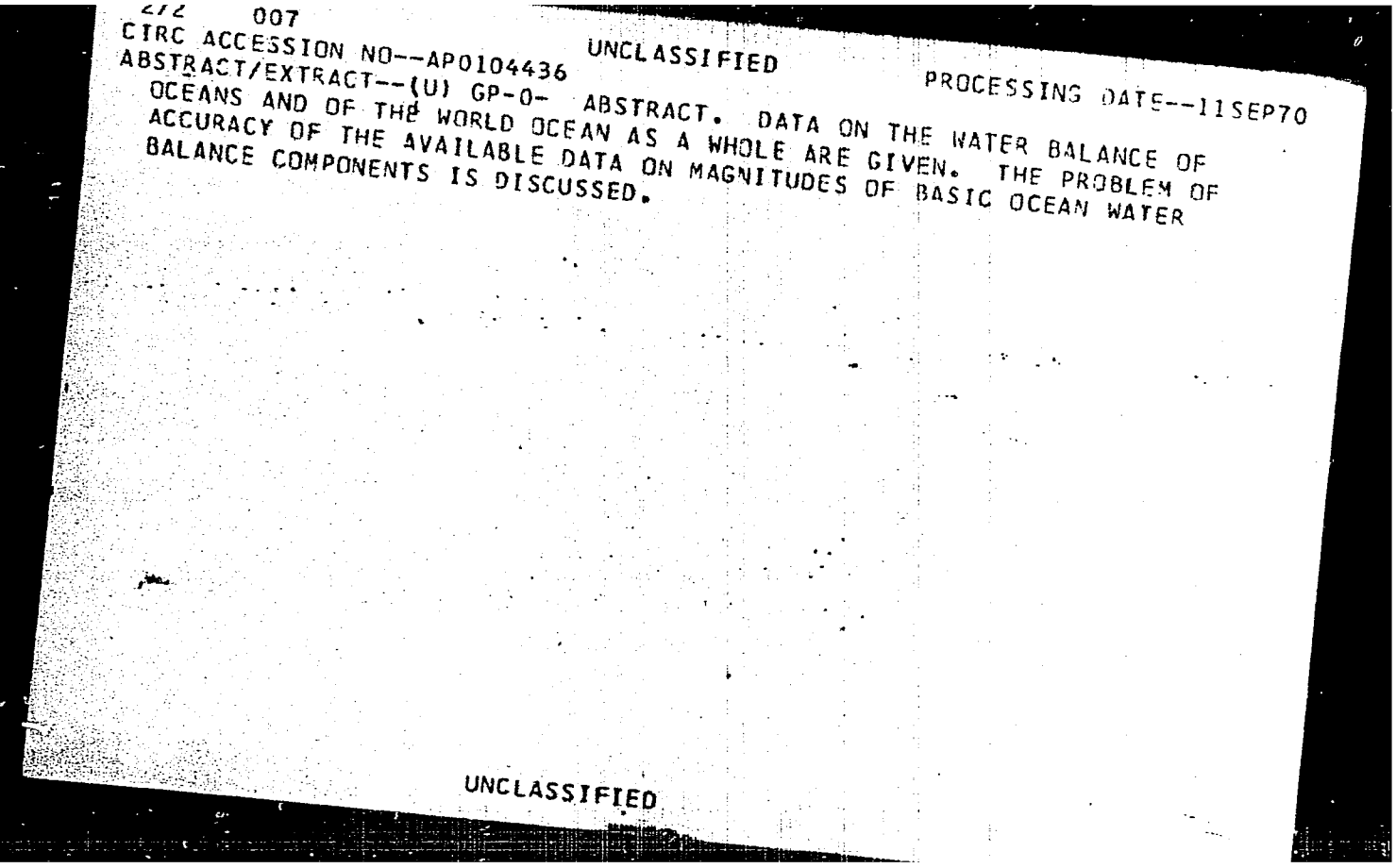
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1038

STEP NO--UR/0050/70/000/004/0049/0058

CIRC ACCESSION NO--AP0104436

UNCLASSIFIED



272 007
UNCLASSIFIED
CIRC ACCESSION NO--AP0104436 PROCESSING DATE--11SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ON THE WATER BALANCE OF OCEANS AND OF THE WORLD OCEAN AS A WHOLE ARE GIVEN. THE PROBLEM OF ACCURACY OF THE AVAILABLE DATA ON MAGNITUDES OF BASIC OCEAN WATER BALANCE COMPONENTS IS DISCUSSED.

UNCLASSIFIED

USSR

STROKIN, V. N.

UDC 629.7.036.2:536.46

"The Process of Self-Ignition and Combustion of Hydrogen in a Supersonic Stream"

Moscow, Goreniye i Vzryv -- Sbornik (Combustion and Explosion -- Collection of Works), Nauka, 1972, pp 282-285 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.92. Resume)

Translation: A discussion is presented of the results of an experimental investigation of the combustion of hydrogen, supplied from the walls into a wind tunnel with the Mach number $M_1 = 3.5$ at the inlet. The air temperature at the wind-tunnel inlet is $T^*_1 \leq 2100^\circ K$, the pressure is $p = 0.04$ absolute atmosphere. It is shown that ignition of the hydrogen takes place at the end of the tunnel, at the layer next to the wall, and the possibility of ignition depends upon the strength of the perturbations carried into the stream by the fuel jets. Combustion in the conditions under consideration brings about a considerable improvement in the intermixing of the fuel with the air. On the basis of special experiments, it is assumed that the reason for this improvement are shock waves originating in the wind tunnel when heat is supplied to a supersonic stream. 5 figures. 4 references.

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USSR

UDC 621.181.8:669.14.001.4(47 + 57)

STROKOPYTOV, V. I., SLOBOCHIKOVA, N. I.

"Investigation of the Metal of Steam Superheater Pipes Made of Kh18N9T and Kh18N12T Steels"

Chelyabinsk, V sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk.ugle" (Collection of Works-Assimilation of 300 Mw Power Units Burning the Ekibastuz Region Coal), 1972, pp 50-56 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6P115 by S. G. Dupleva)

Abstract: In reference to the often pipe failures on PK-39 and PK-39-1 boilers of 300 Mw power units on Troitskoy and Ermakovskoy Hydroelectric Power Stations, tests were carried out on metal of the screen type steam superheater pipes made of Kh18N9T and Kh18N12T austenite steels. Statistical processing showed a large spread in

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USSR

Chelyabinsk, V. sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. egle", 1972, pp 50-56 (From Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6P115 by S. G. Dupleva)

pipe metal chemical composition and mechanical properties. The austenite steels are disposed to surface hardening which leads to the loss in heat resistant properties and failure, under high temperature and pressure conditions. Inspection of the pipe external surface condition showed a great number of defects near weld joints. The metallographic studies showed a fine grained (lower than standard) austenite structure. For the purpose of increasing the service reliability it is necessary to subject the pipes after bending to repeated austenization, rigorously fulfil the heat treatement requirements and improve the quality of contact welding. 3 figures, 1 table, 2 references.

2/2

USSR

UDC 661.666:620.17

FRIDMAN, A. M., BARABANOV, V. N., ANUFRIYEV, YU. P., and STROKOV, V. I.

"Some Features of the Methodology of Investigating the Strength Properties of Graphites Under Plane Stress Conditions"

Moscow, Zavodskaya Laboratoriya, Vol 38, No 9, 1972, pp 1137-1140

Abstract: A device developed for the investigation of short-term strength properties of tubular specimens of graphite at normal temperatures and in all four quadrants of the coordinate system is described. Strength properties at tension and compression of two graphite brands, VPP and MPG-6, are tabulated and their strength dependance on the wall thickness of specimens is illustrated. Four figures, one table, eight bibliographic references.

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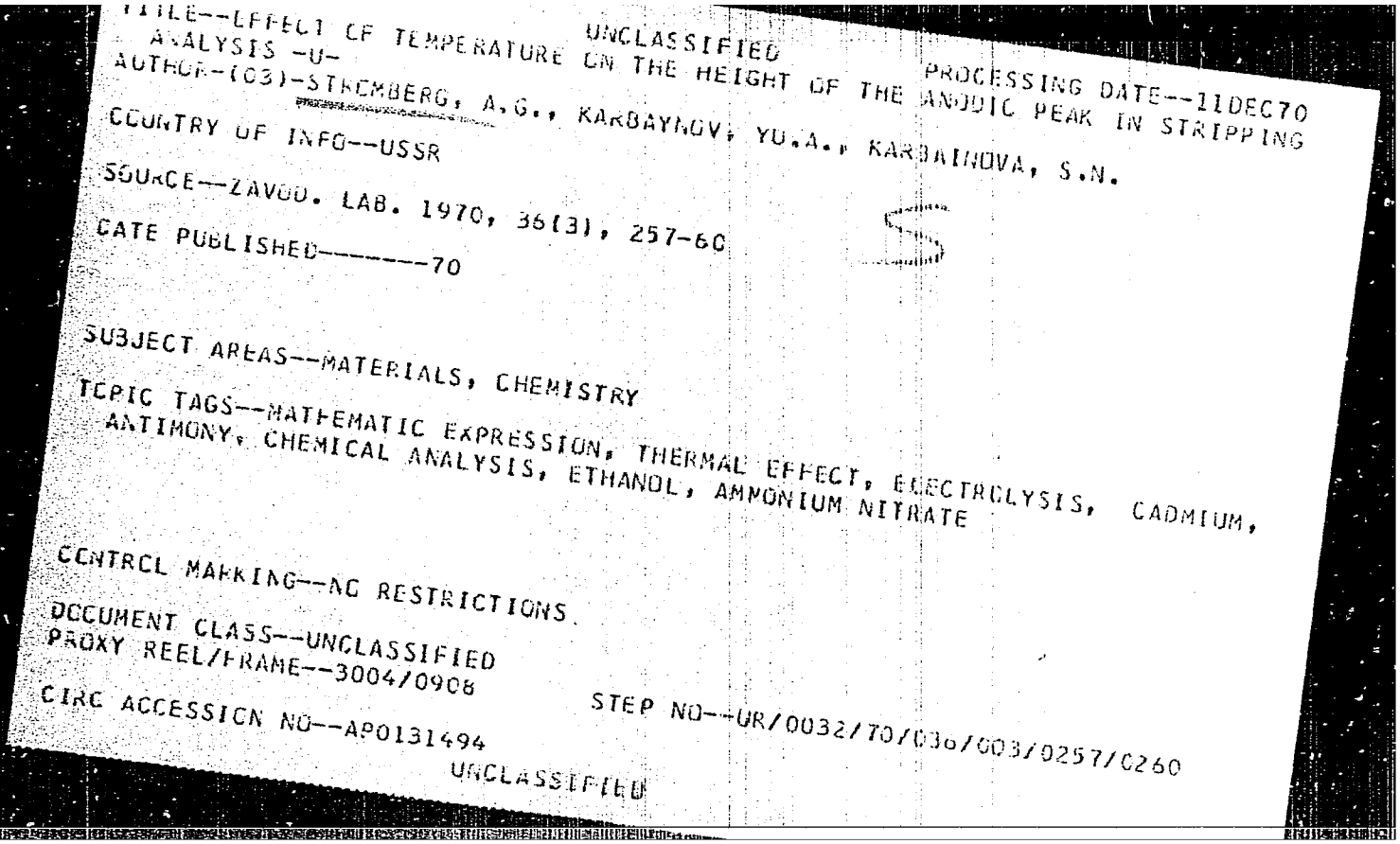


UNCLASSIFIED

TITLE--EFFECT OF TEMPERATURE ON THE HEIGHT OF THE ANODIC PEAK IN STRIPPING ANALYSIS -U-

PROCESSING DATE--11DEC70

AUTHOR-(03)-STROMBERG, A.G., KARBAYNOV, YU.A., KARBAINOVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 257-60

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MATHEMATIC EXPRESSION, THERMAL EFFECT, ELECTROLYSIS, CADMIUM, ANTIMONY, CHEMICAL ANALYSIS, ETHANOL, AMMONIUM NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0908

STEP NO--UR/0032/70/036/003/0257/0260

CIRC ACCESSION NO--AP0131494

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF STRIPPING ANAL. THEORY, MATH. EXPRESSIONS FOR THE EFFECT OF TEMP. ON THE HEIGHT OF THE ANODIC PEAK ARE PRESENTED FOR THE CASE WHEN DEPLETION OF THE SOLN. DOES NOT TAKE PLACE DURING PRELIMINARY ELECTROLYSIS. THE DATA WERE USED TO DEVELOP A RAPID, HIGHLY SENSITIVE METHOD FOR DETG. TRACES OF CO PRIME2 POSITIVE AND SB PRIME3 POSITIVE IN 0.2N NH SUB4 NO SUB3 IN ETOH. THE PROCEDURE IS BASED ON THE PRELIMINARY CONCN. OF METALS IN HG DROP AT TEMPS. NEAR THE B.P. OF THE SOLN. (YU. A. KARBAINOV AND A. G. STROMBERG, 1967). FACILITY: TOMSK. POLITEKH. INST., TOMSK, USSR.

UNCLASSIFIED

UNCLASSIFIED

TITLE--DETERMINATION OF 10 PRIME NEGATIVE7 10 PRIME NEGATIVE6 PERCENT IMPURITIES IN LEAD BY STRIPPING ANALYSIS -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-KAPLIN, A.A., KATYUKHIN, V.E., STROMBERG, A.G.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(1), 18-19

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--LEAD, METAL CHEMICAL ANALYSIS, METAL IMPURITY

CONTROL MARKING--NO RESTRICTIONS

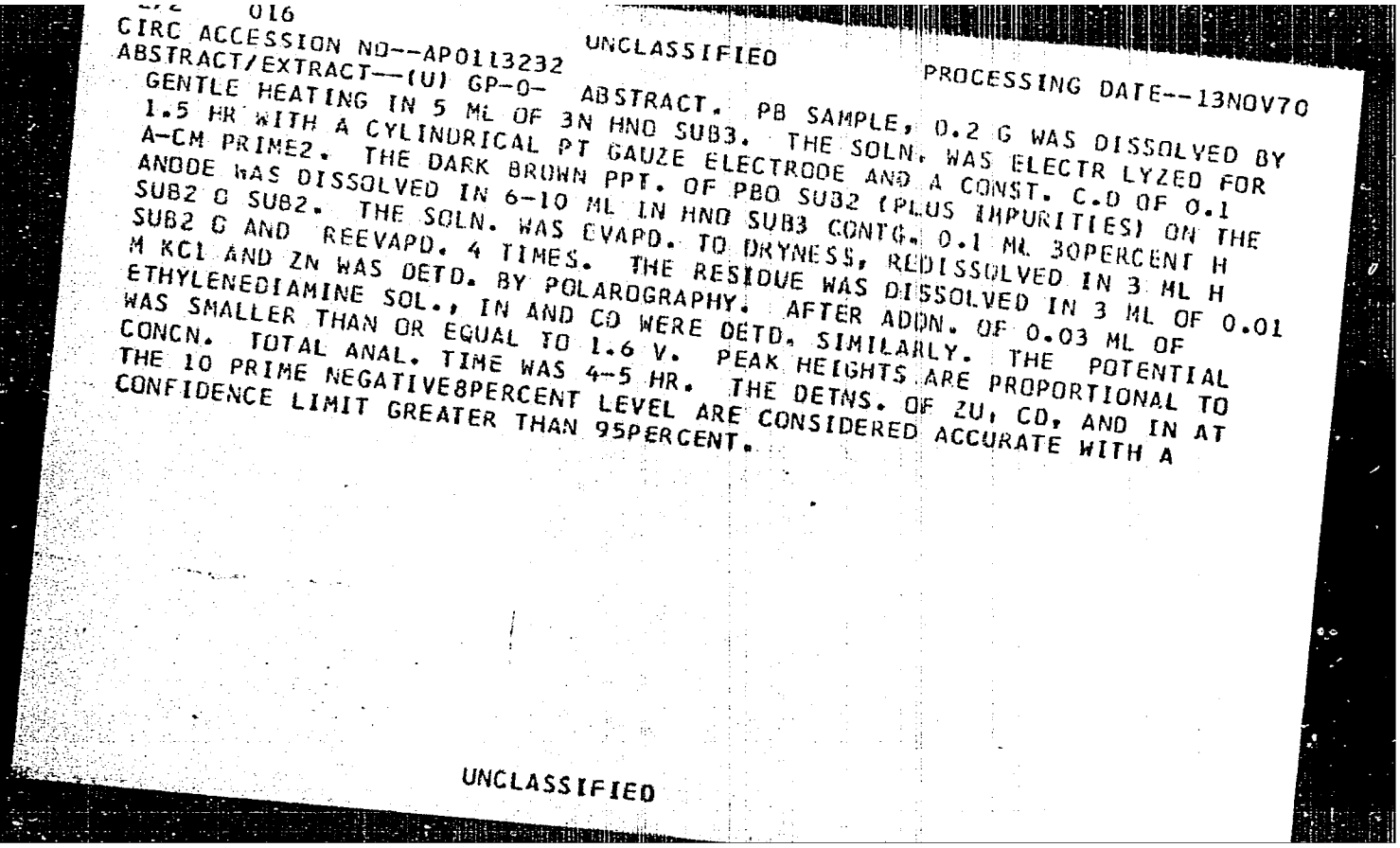
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0302

STEP NO--UR/0032/70/036/001/0018/0019

CIRC ACCESSION NO--AP0113232

UNCLASSIFIED



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UNCLASSIFIED

CIRC ACCESSION NO--AP0113232 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PB SAMPLE, 0.2 G WAS DISSOLVED BY GENTLE HEATING IN 5 ML OF 3N HNO SUB3. THE SOLN. WAS ELECTR LYZED FOR 1.5 HR WITH A CYLINDRICAL PT GAUZE ELECTRODE AND A CONST. C.D OF 0.1 A-CM PRIME2. THE DARK BROWN PPT. OF PBO SUB2 (PLUS IMPURITIES) ON THE ANODE WAS DISSOLVED IN 6-10 ML IN HNO SUB3 CONTG. 0.1 ML 30PERCENT H SUB2 O SUB2. THE SOLN. WAS EVAPD. TO DRYNESS, REDISSOLVED IN 3 ML H SUB2 O AND REEVAPD. 4 TIMES. THE RESIDUE WAS DISSOLVED IN 3 ML OF 0.01 M KCL AND ZN WAS DETD. BY POLAROGRAPHY. AFTER ADDN. OF 0.03 ML OF ETHYLENEDIAMINE SOL., IN AND CD WERE DETD. SIMILARLY. THE POTENTIAL WAS SMALLER THAN OR EQUAL TO 1.6 V. PEAK HEIGHTS ARE PROPORTIONAL TO CONCN. TOTAL ANAL. TIME WAS 4-5 HR. THE DETNS. OF ZU, CD, AND IN AT THE 10 PRIME NEGATIVE8PERCENT LEVEL ARE CONSIDERED ACCURATE WITH A CONFIDENCE LIMIT GREATER THAN 95PERCENT.

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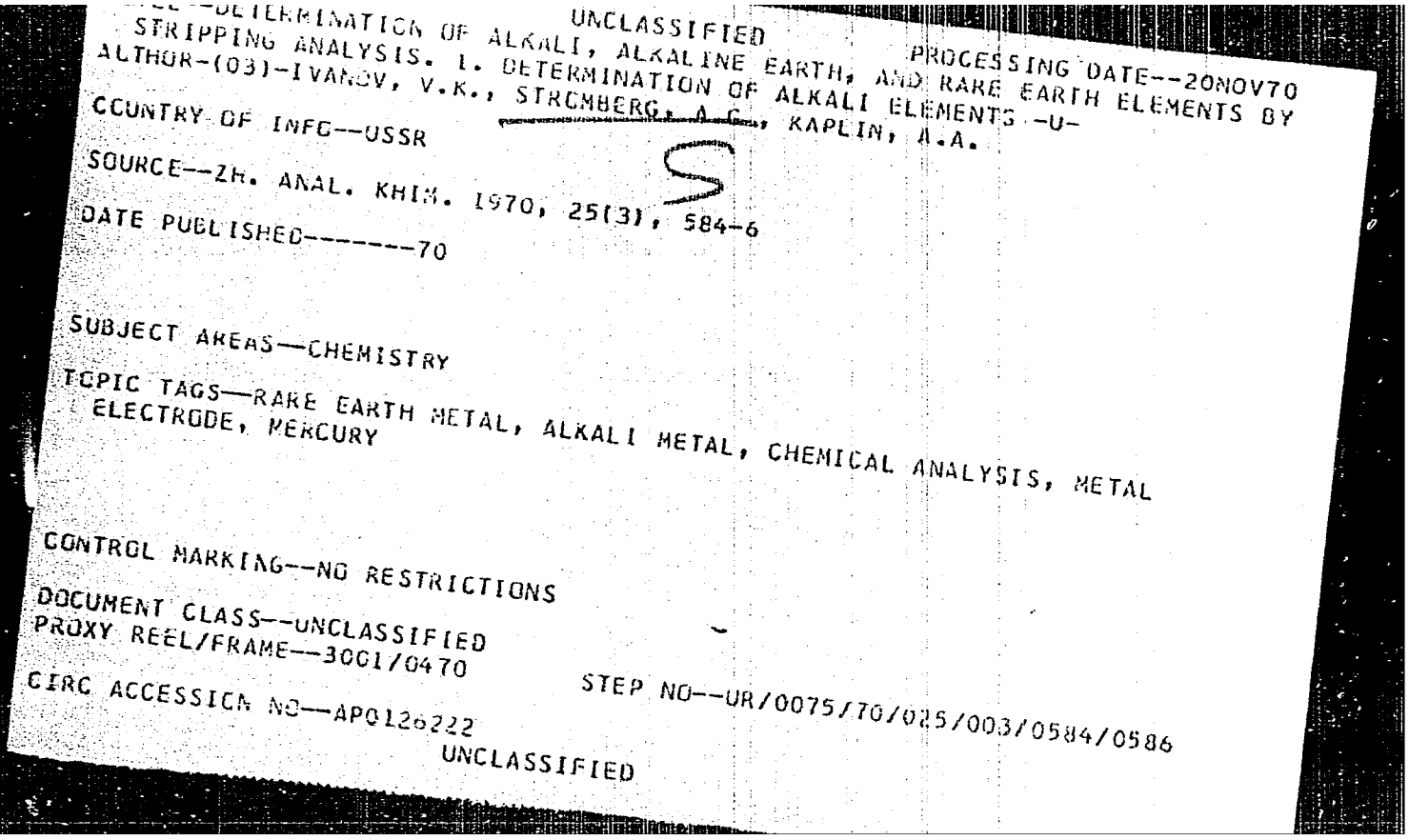

UNCLASSIFIED

PROCESSING DATE--20NOV70

--DETERMINATION OF ALKALI, ALKALINE EARTH, AND RARE EARTH ELEMENTS BY STRIPPING ANALYSIS. I. DETERMINATION OF ALKALI ELEMENTS -U-

AUTHOR-(03)-IVANOV, V.K., STROMBERG, A.G., KAPLIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 584-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH METAL, ALKALI METAL, CHEMICAL ANALYSIS, METAL ELECTRODE, MERCURY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0470

STEP NO--UR/0075/70/025/003/0584/0586

CIRC ACCESSION NO--AP0126222

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126222

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANODIC PEAKS OF LI, K, NA, RB, AND CS WITH BU SUB4 NI SOLNS. IN HCONME SUB2 AS SUPPORTING ELECTROLYTES WERE OBTAINED BY ANODIC STRIPPING WITH A HG ELECTRODE. WITHIN THE STUDIED CONCN. RANGE THE HEIGHT OF THE ANODIC PEAKS FOR ALL THE ELEMENTS IS A LINEAR FUNCTION OF THEIR CONCN. (8 TIMES 10 PRIME NEGATIVE6 5 TIMES 10 PRIME NEGATIVE5 M).

FACILITY: TOMSK POLYTECH. INST., TOMSK, USSR.

UNCLASSIFIED

USSR

UDC 665.59.620.191/.193

PORUTSKIY, G. V., MAKAROV, I. A., STROMENKO, A. Ye., and ROZDAYBEDIN, A. S., All Union Scientific Research Institute of Petrochemistry, Main Petroleum Chemistry Industry, UkrSSR

"Preparation of Sea Water and Corrosion of the Equipment of Petroleum Plants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 4, 1973, pp 39-41

Abstract: Depending on the conditions of circulation flow rate and temperature of water, chemical and biological changes occur in sea water resulting in sedimentation, corrosion and bioformations. Several factors important in considering sea water for cooling and recirculation have been discussed: index of stability based on the content of CO_2, effect of temperature, content of petrochemicals; all of these factors increase the corrosiveness and lead to higher biological activity in sea water.

1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--ONCOGENIC ACTION OF URETHANE AND MYELOID CHLOROLEUKEMIA VIRUS IN ADULT MICE -U-

AUTHOR--STROMSKAYA, T.P.

COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(2), 63-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ETHYL CARBAMATE, ONCOLOGY, TUMOR, LUNG, LEUKEMIA, VIRUS, CARCINOGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1688 STEP NO--UR/0506/70/016/002/0063/0065

CIRC ACCESSION NO--AP0103454

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0103454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADULT CBA-T6T6 MICE SHOWED LOW SENSITIVITY TO THE ONCOGENIC ACTION OF MYELOID CHLOROLEUKEMIA VIRUS AND URETHANE (1 MG-G, I.P.). THE INCIDENCE OF LUNG ADENOMA AFTER 4 ADMINISTRATIONS OF URETHANE WAS DOUBLED, BUT ADMINISTRATION OF EITHER THE VIRUS OR URETHANE ALONE DID NOT AFFECT THE FREQUENCY OF SPONTANEOUS HEPATOMA. COMBINED ADMINISTRATION OF THE 2 CARCINOGENS DID NOT CHANGE THE FREQUENCY OF ALL THE TUMOR SPECIES INDUCED BY THE VIRUS AND BY URETHANE INDIVIDUALLY.

UNCLASSIFIED

USSR UDC: 621.372

STRONA, M. V.

"Two-Transistor Negative Resistance Circuits With Current or Voltage Feedback"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Academic Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 51, pp 126-134 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A98)

Translation: A unified procedure is used in considering the construction and analysis of negative resistance circuits based on two transistors with current or voltage positive feedback. Computational formulas are presented for the input impedance of the most stable negative resistances with regard to the collector capacitance of the transistors, as well as equivalent circuits for calculating the stability of circuits which contain negative resistances. Resumé.

1/1

USSR UDC: 621.373.422(088.8)

STRONA, M. V., Odessa Electrical Engineering Institute of Communications

"A Device With Negative Impedance"

USSR Author's Certificate No 263684, filed 19 Dec 67, published 4 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D124 P)

Translation: This Author's Certificate introduces a device with negative impedance based on a transistor with positive feedback circuit made up of two series-connected capacitors. To obtain an S-type negative impedance characteristic, the transistor is connected in a common-base circuit and the centertap of a capacitive divider connected between the collector and the common bus is connected to one of the input terminals of the device, the other input terminal being connected to the emitter of the transistor. Resumé.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--VOLCANIC ORE FORMATIONS -U-

AUTHOR--STRONA, P.A.

COUNTRY OF INFO--USSR

SOURCE--ZAP. VSES. MINERAL. OBSHCHEST. 1970, 99(2), 139-54

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MINERAL FORMATION ANALYSIS, ORE, VOLCANIC ROCK, GEOLOGIC FORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0633 STEP NO--UR/0000/70/099/002/0139/0154

CIRC ACCESSION NO--AP0134375

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--20NOV7C

CIRC ACCESSION NO--AP0134395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ORE FORMATION IS DEFINED AS A GROUP OF DEPOSITS GENETICALLY OR PARAGENETICALLY RELATED TO A DEFINITE MAGMATIC, SEDIMENTARY, OR METAMORPHIC FORMATION. MAGNETITE CU PB ZN, CARBONATITE, FERRUGENOUS QUARTZITES, CU ZEOLITE, PYRITES, FE MN, CU MO, MO FLUORITE URANINITE, AU W SB HG, AG SN, BORATE, AND AGATE ORE FORMATIONS WERE THUS SEPD. FROM ORE DEPOSITS RELATED TO VOLCANISM. FROM 1 TO 9 MINERAL TYPES OF DEPOSITS (IS GREATER THAN 50 MINERAL TYPES IN ALL) WERE SEPD, IN EACH ORE FORMATION. SAMPLES OF SEPD. FORMATIONS AND MINERAL TYPES OF DEPOSITS ARE GIVEN AND DISCUSSED. FACILITY: LENINGRAD. GORN. INST., LENINGRAD, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ALL PURPOSE APPARATUS FOR DIFFERENTIAL THERMAL ANALYSIS -U-

AUTHOR-(03)-GALVIDIS, N.M., STRONGIN, B.G., PARASINCHUK, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 280-3

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THERMAL ANALYSIS, LABORATORY FURNACE, EXPLOSIVE, THERMOGRAM, SELENIUM, PHASE COMPOSITION, TOXICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0369 STEP NO--UR/0076/70/044/001/0280/0283

CIRC ACCESSION NO--AP0111562

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111562

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DTA APP. IS DESCRIBED. THE FURNACE CAN BE USED FOR DETG. THE APPROPRIATE THERMAL TREATMENT AND (OR) FOR DTA OF THE COMPD. THE APP. IS USED FOR EXPLOSIVE AND TOXIC SUBSTANCES. THE THERMOGRAPH OF SE, WATER QUENCHED AT 400DEGREES, ILLUSTRATES ITS STRUCTURAL CHANGES IN THE AMORPHOUS, CRYST., AND LIQ. PHASE. FACILITY: CHERNOVITS. GOS. UNIV., CHERNOVTSY, USSR.

UNCLASSIFIED

STRONGIN, G. L.

UDC 616.13-004.6-036.4-057.9:629.7/-07:612.1-009.1-07

CARDIOVASCULAR SYSTEM REACTIONS IN PILOTS WITH SYMPTOMS OF ATHEROSCLEROSIS DURING PROFESSIONAL WORK

G. L. Strongin, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 5, September-October 1971, pp 62-67, submitted for publication 24 June 1971

Abstract: Commercial airline pilots with symptoms of atherosclerosis were examined during real (56 persons) and simulated (64 persons) flights. Groups of healthy pilots were also surveyed as a comparison (21 and 33 subjects respectively). Electrocardiograms and arterial pressure were registered prior to flight, during different flight stages and after landing. The emotional stress associated with aircraft control brought about an increase in heart rate, a change in the ECG pattern and a rise in arterial pressure. Most pilots with atherosclerotic symptoms were found to be well adapted to their professional duties. However, some of them exhibited symptoms of relative coronary insufficiency (shortening of ST segments, inversion of T waves), cardiac arrhythmias (extrasystoles), and distinct hypertension reactions. A comparison of the pathological reactions with data from clinical examinations shows that the latter are of a high but not absolute reliability.

The problems involved in diagnosis of early forms of atherosclerosis in flight personnel have now been studied in considerable detail (G. L. Gel'man, et al., 1969, 1971; Ye. T. Malyshkin, et al.). It has been demonstrated that most pilots who exhibit symptoms of affliction with atherosclerosis have adequate functional reserves and are in a state of stable compensation. However, the important problem of the degree of admissibility of a pilot afflicted with this disease to the conditions of his profession activity, a highly important aspect of which is neuroemotional stress, remains uninvestigated. The lack of data on individual reactions to

1 of 2

- 99 -

1/2 038 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--GROUP CLASSIFICATION AND PARTICULAR SOLUTIONS OF THE ENERGY EQUATION FOR AN ELECTRIC ARC IN A GAS FLOW -U-
AUTHOR-(03)-VEDERNIKOV, G.A., STRONGIN, M.P., URYUKOV, B.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, SIBIRSKOE OTDELENIE, IZVESTIIA, SERIIA TEKHNICHESKIKH NAUK, FEB. 1970, P. 22-29
DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC ARC, ENERGY THEORY, GAS FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1271 STEP NO--UR/0288/70/000/000/0022/0029

CIRC ACCESSION NO--AP0124922
UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0124922

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE BEHAVIOR OF AN ELECTRIC ARC IN AN UNBOUNDED GAS FLOW ASSUMED TO BE STEADY AND AXISYMMETRIC. PARTICULAR SOLUTIONS TO THE ENERGY EQUATION FOR THIS PROBLEM ARE SOUGHT ON THE BASIS OF A GROUP CLASSIFICATION OF THE ENERGY EQUATION, SINCE KNOWLEDGE OF THE MAIN GROUP MAKES IT POSSIBLE TO OBTAIN A BROAD CLASS OF PARTICULAR SOLUTIONS CALLED INVARIANT GROUP SOLUTIONS.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT TEORETICHESKOI I PRIKLADNOI MEKHANIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

BATISHCHEV, D. I. and STRONGIN, R. G.

"Numerical Methods of Solution of Matrix Games"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973, pp 65-69 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V437)

Translation: The solution of a matrix game is reduced to determination of the maximum convex, piecewise-linear function, dependent on the mixed strategy of the first player. It is suggested that two search methods be used for maximization of undifferentiable continuous convex functions.

1/1

USSR

UDC: 621.396.6-181.5

DENISOV, A. I., DOBROVOL'SKIY, G. F., LOMOVTSEV, A. M., STROYEV, I. S.,
Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Setting and Mounting Micromodules With Planar Leads on Printed Circuit Borads"

Moscow, Radiotekhnika, Vol. 26, No 5, May 71, pp 99-101

Abstract: A new method is proposed for stand-off mounting of micromodules with planar leads on printed circuit boards. Essentially, the module is held away from the board by a "bridge" of lacquer. After completion of the mounting process, the "bridge" is destroyed by heat. With the proposed method, the entire process of assembly can be mechanized and simultaneously shortened. Sources of contamination which have an adverse effect on the electrical parameters of the board can be completely eliminated, and the finished units can be repaired.

1/1

USSR UDC 669.14.018.8:620.18:620.17

VITMAN, D. V., TARKHOV, N. A., and STROYEV, V. S.

"Change of Structure and Properties of Cr-Ni Steels During Heating in Carbonaceous Atmospheres"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 9-12

Abstract: Effect of structure and properties of Kh23N18 and Kh20N14S2 steels in the form of pipe were studied for conditions of crack development according to changes in structure and chemical composition. Kh23N18 steel pipe had been exposed to carbon-containing atmospheres at 900-920°C for one year while Kh10N14S2 pipe had been subjected to the same atmosphere at 950°C for 2000 hours. The diffusion layer was 4.6 mm deep for Kh23N18 steel and 1.8-2.2 mm deep for Kh20N14S2 and the structure consisted of austenite and chromium carbides of the $M_{23}C_6$ and M_7C_3 types with the deep layers containing the $M_{23}C_6$ carbide. In the process of saturating these steels with carbon there occurs the discontinuous transformation of $M_{23}C_6$ carbides into M_7C_3 carbides which permits enrichment of the austenite with chromium. Metal of the diffusion layer in Cr-Ni steels possesses low ductility at 20-700°C which has been associated with the formation of structure stresses caused by the

1/2

USSR

VITMAN, D. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 9-12

different coefficients of linear thermal expansion of the structural constituents and the presence of a large amount of the carbide phase. Five figures, three tables, six bibliographic references.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CYTOGENETIC ACTIVITY OF THE HERBICIDES ATRAZINE, CI-PC, AND PARAQUAT -U-

AUTHOR--STROYEV, V.S.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 1970, 6(3), 31-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--HERBICIDE, CHROMOSOME, WHEAT, CYTOLOGY/(U)ATRAZINE HERBICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0582

STEP NO--UR/0473/70/006/003/0031/0037

CIRC ACCESSION NO--AP0122703

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122703

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AQ. 5 TIMES 10 PRIME NEGATIVE3 M ATRZAINE SOLN. INDUCES 3.17PERCENT CHROMOSOMAL ABERRATIONS IN WHEAT SEEDS (CONTROL, 1.89PERCENT). AT HALF THIS CONCN., IT IS NOT CYTOGENIC. CIPC PRODUCES 7.10PERCENT ABERRATIONS AT THE 2.5 TIMES 10 PRIME NEGATIVE6 M LEVEL AND LOWERS THE MECH. STRENGTH OF CELL MEMBRANES. PARAQUAT PRODUCES 4.10PERCENT ABERRATIONS AT 5.0 TIMES 10 PRIME NEGATIVE5 M. THE CHROMOSOME REARRANGEMENTS INDUCED BY THE 3 HERBICIDES ARE ESSENTIALLY THE SAME AS THOSE OCCURRING SPONTANEOUSLY; THUS, THEY BELONG TO THE "DELAYED" TYPE BASED ON RECONSTRUCTIONS OF CHROMATID TYPE. NONE OF THESE COMPDS. AFFECTED THE MITOTIC ACTIVITY OF CELLS.

FACILITY: INST. GEN. GENET., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210011-9"

USSR

UDC 621.791.052:621.318.23.002.612

VOLIKOVA, I. G., Candidate of Technical Sciences, KARAN, YU. B., All Union Scientific Research Institute for Chemical Machine Building, and STROYEV, V. S., Engineer, Moscow Experimental Welding Plant

"The Effect of the Ferrite Phase on the Corrosion Resistance of Welded Kh18N10T Steel Joints"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 70, pp 11-13

Abstract: The effect of the ferrite phase on the corrosion resistance of welded joints of Kh18N10T steel was investigated. Tests were carried out on 5.5 x 30-mm weld metal and welded samples cut from the two upper layers of ten-fold welds. The given ferrite quantity in the metal welded by electrodes made of test metals and various alloy compositions was achieved by varying the metallic Cr and FeNb content in the deposed composition. The ferrite content in the welded metal was determined by a volume method on a ballistic facility and in the weld metal by an alpha-phase-meter. The chemical composition of Kh18N10T steel is given in a table. The effect of the ferrite on the corrosion resistance of the welded metal was determined by a test in 65% boiling nitric acid (5 cycles of 48 hr), and also by the AM method (GOST 60 32-58), and in production on samples with transversal, longitudinal, and criss-cross welds.

1/2

USSR

VOLIKOVA, I. G., et al, Svarochnoye Proizvodstvo, No 3, Mar 70, pp 11-13

The corrosion resistance was evaluated by weight-loss data and by metallographic analysis. The nature of the dissolution of welded metals produced by CrNi and standard electrodes in 65% nitric acid is discussed. The results show that the presence of titanium or niobium in a CrNi solid solution reduces its corrosion resistance. Tests conducted on welded samples by the AM method showed that not a single sample was disposed toward intercrystalline corrosion. They also show that the presence of ferrite (regardless of quantity) in the welded alloys of Kh18N10T steel does not reduce its corrosion resistance in media. An increased niobium content in type-18-8 welded metal (with an Nb/C ratio of 12 or more) reduces its corrosion resistance. Orig. art. has: 2 figures, 4 tables, and 5 references.

2/2

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USSR

UDC 615.471:615.849.5

DENISENKO, O. N., IL'ICHEV, B. V., KOZLOV, V. A., SKOROPAD, Yu. D., STROYKOV, M. Ye.

"Fifty-Channel Dosimeter With Transistorized Detectors"

Moscow, Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Translation: Department of Roentology and Radiology (Chief-Academician of Academy of Medical Sciences, USSR, G. A. Zedgenidze) of the Scientific-Technical Institute of Medical Radiology of the Academy of Medical Sciences, USSR, Obninsk.

Growth of means for measurement of dose fields lead to the creation of automatic isodoseographs of the following or scanning type (V. A. Volkov, Kh. Dzhons; E. G. Bochkarev and V. A. Mikhaylov). In essence such an isodoseograph is a dosimeter, the movement and recording of readings of which take place automatically. The principal disadvantages of a device of this type is the low operativeness, the impossibility of measurements in solid phantoms, and also with the use of mobile methods of irraliation provide a way so that the isodosograph pertains to the class of single-channel recording systems.

Transition to multichannel methods of recording because of the basic trend in measuring techniques makes it possible to eliminate the disadvantages mentioned above.

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USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

In the literature a 10-channel isodoseograph with ionization chambers (Birkner) is described; however, the small number of detectors requires additional transfer of them which for practical purposes reduces the principal advantages of a multichannel system to nothing.

A fifty-channel system of recording a dose field with megavolt radiation energy was developed by us.

The over-all block diagram of the multichannel dosimeter shown in Fig. 1 is constructed on the principle of time sharing of the channels. The commutator K_1, which is triggered by the generator G, successively connects the detectors D_1--D_{50} to the input of the d-c amplifier (UPT). The amplified signal passes by way of commutator K_2, operating in step with the commutator K_1, through the correcting network K_{Ts1}--K_{Ts50} intended for balancing the sensitivity of the detectors, and is admitted into the recording device. The recording device is a digital voltmeter TsV, the frequency of the measurement cycle of which is also determined by the generator G. The response of the digital voltmeter can be recorded visually, photographically or with the aid of the digital-printing device TsU. During the comparative representation of the results of the measurements, the signal J_0 of the reference detector is

2/15

USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

established with the aid of a resistor R, 100 percent equal to 100 units (mv). The sensitivities J_n of the other detectors automatically represent the ratio J_n/J_o expressed in percentages.

Semiconductor silicon phototransducers with a p-n junction are used as radiation detectors, the electrical and dosimetric character of which are well known (Yu. B. Mandel'tsvayg; A. N. Krongauze and coauthors; F. I. Glezin and coauthors). For their use in a multichannel system it is necessary that the spread of the basic parameters -- sensitivity, energy dependence, internal resistance -- be a minimum. The initial choice of detectors with dimensions of 10 x 10 x 1 mm from a batch of 300 pieces was made on the basis of measurements with the aid of an avometer [ampere-volt-ohmmeter] of the values of the forward and back resistances. As investigations showed, for maintenance of zero of an amplifier operating in a compensating regime it is necessary that the magnitude R_{back} be not less than 50--60 kOhm.

After this, the energy dependence was studied of 10 detectors arbitrarily selected from a batch of detectors in the 13-120 e.v. range.

3/15

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USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 13, No 2, 1973, pp 40-45

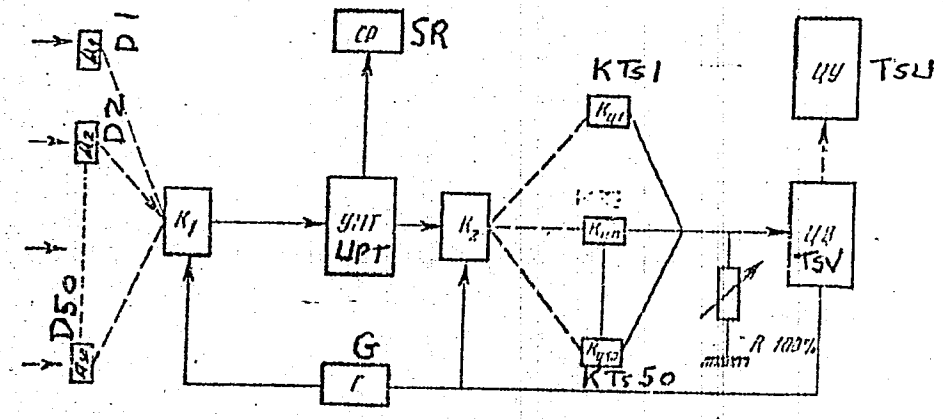

Fig. 1. Block Diagram Of Multichannel Dosimeter

4/15

USSR

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

The results obtained show that the maximum spread does not exceed 20-30 percent. It practically did not affect the attenuation curves of Co^{60} measured with the aid of these detectors. The attenuation curves coincided with attenuation curves measured by the scintillation detector of the NS-200/B dosimeter with a precision on the order of 3 percent, which corresponds to data obtained in the work of V. K. Lyapidevskiy. The geometry of the detector in the form of a plate with dimensions of 10 x 10 x 1 mm is not optimum, which appears in the dependence of the sensitivity on the angle of incidence of the quanta emission. In order to improve the geometry, the plates were divided into two equal halves which then were superimposed one on the other (sensitive side inward) so that the over-all dimensions of the detector became equal to 10 x 5 x 2 mm. Electrically, these parts of the detector were connected in parallel, thanks to which the electrical parameters and the sensitivity of the new detector correspond to the original (up to cutting). The dependence of the response on the angle of incidence of the γ quanta during this did not exceed 5 percent (the analogous magnitude for the original plate was 25 percent).

The maximum spread of the detector was in sensitivity. The differential distribution of sensitivity is shown in Fig. 2 a and the integral in Fig. 2 b.

5/15

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USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

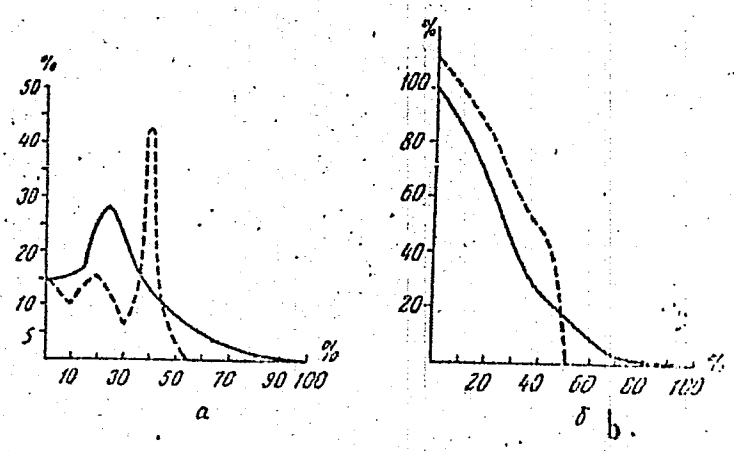

Fig. 2. Distribution of Detectors With Respect to Sensitivity
a--Differential; b--Integral. Solid line up to "cutting of the detectors; dotted line, after.

6/15

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USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Co^{60} radiation was used in determining the sensitivity. The relative sensitivity (the response of the most sensitive detector is taken as equal to 100) is plotted on the X axis and the relative number of detectors (the overall number of detectors in a batch corresponds to 100) on the Y axis.

All detectors were equalized to a relative sensitivity of 40 percent. It is clear that during this it is possible to utilize those detectors, the relative sensitivity of which exceeds 40 percent. It is possible mechanically to reduce the sensitivity (e.g., by a decrease of the dimensions of the detector) and by electrical means. We used the latter method, for which correcting networks were introduced into the electrical circuit [tsep'] for the signals after amplification, with the aid of which it was possible smoothly to change the sensitivity to the necessary magnitude. As seen from Fig. 2 b, the relative number of detectors which were used during this did not exceed 25 percent (for a relative sensitivity of 40 percent). In order to increase the output of the detectors in a batch which are used, and the preliminary (up to electrical correction) equalizing of their sensitivity, the process described above of improving the geometry of the detectors was used. To accomplish this, the halves of detectors with a relative sensitivity greater than 40 percent were connected with halves of detectors with a relative sensitivity less than

USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

40 percent, so that the sum of their relative sensitivities would amount to 40 percent. The corresponding distributions after these operations are shown in the dotted lines of Figs. 2 a and 2 b. It is seen that the output of detectors which are used increased up to 55 percent. Furthermore, the spread of the detectors with respect to sensitivity (see Fig. 2 a) was substantially decreased, which to a considerable degree contributed to a simplification of the electrical circuits for sensitivity control. After electrical connection the final spread of 50 selected detectors did not exceed 2 percent.

The detectors were placed at the ends of rods (at a depth of 3 mm) with a length of 30 cm and a diameter of 1 cm, made of tissue-equivalent mass M-3. Conductors with a cross section of 0.14 mm passed within the rods. The number of the detector was placed on the lateral face of the rod. For convenience in exploitation, all the detectors were united in groups of 10 pieces each, which are connected via releasable connections to the block of the K_1 commutator, distributed in the immediate vicinity of the phantom.

The principal circuit and the external appearance of the multichannel dosimeter are shown in Figs. 3 and 4.

8/15

USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45 (1)

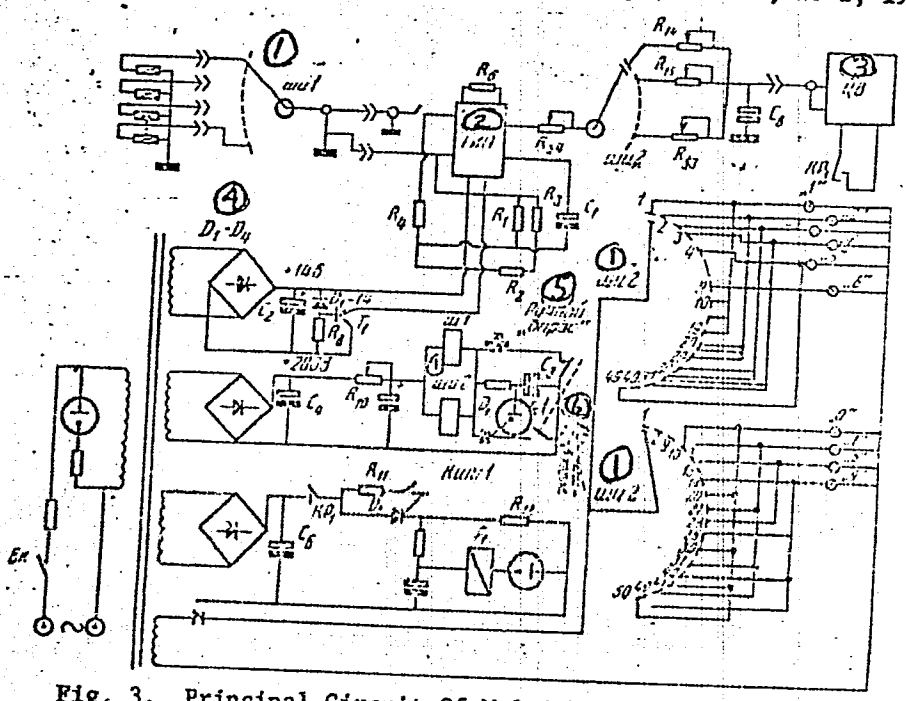

Fig. 3. Principal Circuit Of Multichannel Dosimeter

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Key to Fig. 3.

1. (SH)-1, -2 Step-by-step switch
2. Galvanometric induction converter
3. Digital voltmeter
4. Detectors
5. Manual interrogation
6. Manual-automatic

ShI-50/4 step-by-step switches were used as K_1 and K_2 commutators. Their triggering was accomplished by the thyristorized generator L_1, operating in a regime of energy pileup in the interval between pulses. The possibility is provided for of manual or automatic interrogation with frequency control. After the commutator K_1 the signal enters a Type I-310 d-c amplifier which contains a Type 131M/3 galvanometric induction converter (GIP) an a-c amplifier, and a synchronous demodulator. The input resistance of the GIP does not exceed 1-2 ohm which makes it possible to assure realization of a short-circuit regime. From the GIP the signal proceeds via the commutator K_2 to the correcting network which contains the variable resistors R_{14}-R_{53}. Resistor R_{54} (100

10/15

USSR

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

percent R) is used during relative measurements. For an indication of the number of a detector being questioned, indicator digital panels were used, connected with the aid of the ShI-50/4 contacts, and giving in digital form the number of the detector being questioned. The results of the measurements were recorded with the aid of a Type ShCh1411M digital voltmeter, with which an output to digital printing in the code 2-4-2-1 was provided.

Structurally the multichannel dosimeter is made in the form of the block of detectors, the block of the commutator K_1, a principal block in which are located the commutator K_2, the d-c amplifier (UPT), the correcting network, and the control general G, the power supply block, and the digital voltmeter block.

The commutator K_1 is located in the immediate vicinity of the phantom. The signals are transmitted with the aid of a coaxial cable approximately 20 m long. For convenience, in the principal block there was a supplementary pointer-type recorder (SR) (See Fig. 1) of the power of the radiation dose, connected to the output of the GIP.

11/15

USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

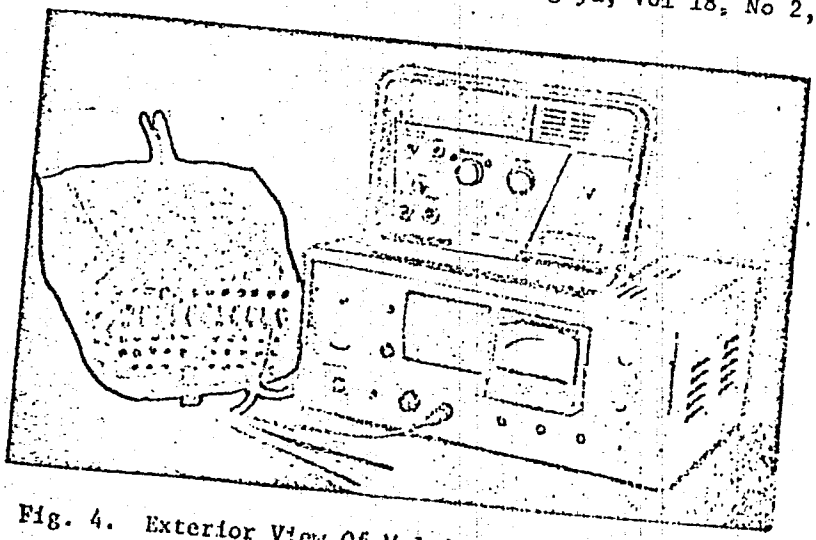

Fig. 4. Exterior View Of Multichannel Dosimeter

12/15

USSR

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

The multichannel dosimeter can be used with any phantom, both liquid and solid. In our investigations a dosimetric phantom of a human thorax was used, prepared on the basis of this part of the skeleton fixed in Formalin. The thorax wall, the heart, liver, and diaphragm are fulfilled from the M-3 phantom mass (M. Tyubiana and coauthor). The trachea and esophagus are simulated with vinyl chloride tubes. The spinal column canal is a natural cavity with vinyl chloride tubes lead into it. In place of the arrangement of the lungs, a cavity is provided, with the anatomy and dimensions of the skeleton taken into account. The cavity can be filled with various tissue-like materials and ionizing radiation detectors can be introduced into it. On the side of the distal end of the phantom there are 50 cylindrical channels 1 cm in diameter in which rods with detectors can be placed. The direction of the channels coincides with the longitudinal axis of the phantom.

Thus the dosimetric phantom of a human thorax makes it possible wholly or partially to vary the composition of the substance filling the "lungs" cavity and to place detectors at any point of the phantom, including the "esophagus," "trachea," and the "spinal column channel."

Measurements performed on this phantom with the aid of the multichannel dosimeter showed that introduction of detectors into the phantom did not affect the dose field within the limits of error of the measurements.

13/15

USSR

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

With the electronic stages taken into consideration the over-all error of measurements did not exceed 5 percent.

Conclusions A 50-channel dosimeter with semiconductor detectors of the "solar cell" type was developed. The principle of time sharing of the detector communication channels with the recording device is placed at the basis of the block diagram. The multichannel dosimeter makes it possible to conduct measurements on any phantom with the application of static methods of irradiation. It would be possible to use a block diagram with parallel "interrogation" of detectors for recording of the dose field with mobile methods of irradiation; however, for a large number of channels its creation encounters considerable difficulties. In spite of this it is possible to stress that transition to multichannel methods of recording dose fields is very promising and the development in question is only the first step in this direction.

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14/15

USSR

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

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Received 16 December 1971

15/15

Publications

USSR

UDC: 615.9:623.4597-82

STROYKOV, Yu. N.

Meditsinskaya Pomoshch' Porazhennym Otravlyayushchimi Veshchestvami (Medical Assistance to Those Affected by Poisonous Substances), Moscow "Meditsina" 1970, 208 pp

Translation:

Annotation: The book is dedicated to problems concerned with the treatment of those injured by military toxins. Greatest attention is given to the treatment of intoxications with neuroparalytic toxins, which because of their exceptionally high toxicity are regarded by military specialists of the Imperialist Armies as the most likely basic elements of chemical weapons of mass destruction. Chemical weapons and also the special features of the focus of chemical contamination, depending on the type of agent and the method of its military application, are briefly characterized in the book. Special attention is given to principles of organization of medical assistance to the injured while in the focus of chemical contamination and to the stages of medical evacuation apropriate to the structure of the medical service in the Civil Defense System. Methods of rendering self-help and mutual assistance are considered of the greatest importance in the prophylaxis of injuries and in saving lives and are examined in detail. The extent

1/3

USSR

STROYKOV, Yu. N., Meditsinskaya Pomoshch' Porazhennym Otravlyayushchimi Veshchestvami (Medical Assistance to Those Affected by Poisonous Substances), Moscow "Meditsina", 1970, 208 pp

of paramedical assistance to be rendered at the focus and the amount of initial assistance by a physician of the detachment of primary medical assistance are characterized. The basic directions of rendering medical assistance in the suburban prophylactic hospitals are discussed at the conclusion of the annotation. Foreign press data characterixing chemical weapons and the rendering of medical assistance to the injured are widely utilized in the book. The book is intended for a wide group of physicians and also for medical service workers of the Civil Defense System.

Table of Contents:

USSR

STROYKOV, Yu. N., Meditsinskaya Pomoshch' Porazhennym Otravlyayushchimi Veshchestvami (Medical Assistance to Those Affected by Poisonous Substances), Moscow "Meditsina", 1970, 208 pp

3/3

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF ESERINE ON LACTATE DEHYDROGENASE ISOENZYMES IN CAT BRAIN -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ESERINE ADMINISTERED I.M. TO CATS AT 1.35 MG PER KG DECREASED THE TOTAL ACTIVITY OF LACTATE DEHYDROGENASE (LDH) (EC 1.1.1.27), BUT DID NOT SIGNIFICANTLY CHANGE THE LDH SPECTRUM IN THE MYOCARDIUM AND KIDNEYS. ESERINE SELECTIVELY INCREASED THE ACTIVITY OF LACTATE DEHYDROGENASE ISOENZYME IN THE BRAIN TISSUE, PROBABLY BY REPRESSING GENE A AND INCREASING BIOSYNTHESIS OF THE M POLYPEPTIDES. FACILITY: VOENNO-MED. AKAD. IM. KIROVA, LENINGRAD, USSR.

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UDC: 681.268.9

MUKANOV, D. M., STROYKOVSKIY, A. K., PERSHIN, A. A.

"A Radioisotopic Instrument for Automatically Measuring the Weight of a Sintering Charge"

V sb. Radioizotop. sredstva kontrolya i avtomatiz. tekhnol. protsessov v prom-sti (Radic Isotope Means of Monitoring and Automating Technological Processes in Industry--collection of works), Moscow, Atomizdat, 1972, pp 306-311 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.292)

Translation: The described weight meter enables continuous determination of the weight of a material during free fall at transfer points with simultaneous weighing of the components of a sintering charge at 36 points. The measurement method is based on the Compton process of interaction between gamma rays and matter.

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Acc. Nr. AP0041503 Abstracting Service: CHEMICAL ABST. 4/70 S Ref. Code 4R0366

89919p Reactivity of diphenylcarbene in reactions with olefins. D'yakonov, I. A.; Stroiman, I. M.; Vilenberg, A. G. (Leningrad. Gos. Univ., Leningrad, USSR). *Zh. Org. Khim.* 1970, 6(1), 42-5 (Russ). Ph_2C: has electrophilic character and it also has greater reactivity when it is formed from Ph_2CN_2 by photolysis than when it is formed by catalytic decompn. The reaction of H_2C:CHOBu (I) with Ph_2C: produced by irradn. gave 35.2% 1,1-diphenyl-2-butoxycyclopropane (II), 12% $(Ph_2C:N)_2$, and 14.4% Ph_2CO. In the reaction of I with Ph_2C: produced by heating Cu stearate-$PhCN_2$ complex 16.7% II was obtained. The reaction of 1-heptane with photolytically produced Ph_2C: gave 4.5% 1,1-diphenyl-2-amylcyclopropane, 12% Ph_2CO, and 38.4% $Ph_2CHCHPh_2$. CPJR

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UDC: 621.315.592

LAZAREVA, I.K. and STUCHEBNIKOV, V.M.

"Photoluminescence of GaSb Alloyed with Te"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 649-653

Abstract: An experimental article describing experiments performed to study radiative transitions in semiconductors which, as the authors assert, permit gathering valuable information concerning the energy spectrum of the crystal. The subject of this study is degenerate n-type GaSb alloyed with tellurium. The study shows that the radiation transitions go from the conductivity zone to a deep acceptor level. However, the widening of the level due to increased alloying does not permit using radiation spectra to determine the form of density distribution of the states close to the conductivity zone. The photoluminescence spectra were obtained at 12 and 77° K. Recombination radiation was excited by gas lasers of the LG-35 or LG-126 type with wavelengths of 0.63 and 1.5 microns, the radiation excitation power being approximately 5 watts/cm^2. An ADP crystal was used to quench the laser parasitic radiation in the 0.6-0.8 electron-volt range. Recording of the radiation was done by a device using the IKS-12 spectrometer, with a PbS photoresistor as the radiation sensor. The article presents five curves, one of which shows how the spectra move in the direction of

centrations of the tellurium alloy. The authors express their gratitude to

USSR

LAZAREVA, I.K., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 649-653

A.E. Yunovich and L.V. Keldysh for their assistance, and to V.M. Karneyev for obtaining the spectra.